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### SCIENTIFIC SERIALS

*American Journal of Science*, June.—Notes on American earthquakes, with a summary of the seismic disturbances recorded in North and South America and adjacent waters during the year 1884, by C. G. Rockwood, jun.—Taconic rocks and stratigraphy (continued): V. metamorphism and mineral constitution in the Taconic region, gradational from west to east and from north to south, by James D. Dana.—Notes on the possible age of some of the Mesozoic rocks of the Queen Charlotte Islands and British Columbia, by J. F. Whiteaves.—Crystallised Tiemannite and metacinnabarite, by Samuel L. Penfield. To the paper is appended a note by Prof. J. E. Clayton on the occurrence of Tiemannite in a mine 200 miles south of Salt Lake City.—On the gahnite occurring in the Davis Mines of Rowe, Massachusetts.—The genealogy and age of the species in the southern Old Tertiaries, by Dr. Otto Meyer.—On some specimens of meteoric iron from Trinity County, California, by Charles Upham Shepard. The analysis yielded: iron, 88.810; nickel, 7.278; cobalt, 0.172; phosphorus, 0.120.—The Potsdam group east of the Blue Ridge at Balcony Falls, Virginia, by H. D. Campbell.—Geology of the sea-bottom in the approaches to New York Bay, by A. Lindenkohl.—Additional notes on the Kettle-Holes of the Wood's Holl region, Massachusetts, by B. F. Koons.—Cause of the apparently perfect cleavage in American spheue (titanite), by G. H. Williams.

*American Journal of Science*, July.—Contributions to meteorology. Twenty-first paper: direction and velocity of movement of areas of low pressure, by Prof. Elias Loomis. The paper is accompanied by numerous tables showing the average direction of storm tracts, the comparative tracts of storm and atmospheric currents over the Atlantic and United States, the progress of storm centres in Europe.—Note on some Palæozoic Pteropods, by Charles D. Walcott. With some hesitation the writer includes in the Pteropod group such organisms as *Conularia*, *Hyalolithes*, *Coleolus*, *Salterella*, *Pterotheca*, as well as *Matthevia*, which is here chiefly dealt with. This peculiar shell, which he so names in honour of Mr. G. F. Matthew, is, however, so distinct from all described forms of Pteropoda that a new family Matthevide, is proposed to receive the one genus now known.—A determination of the B.A. unit in terms of the mechanical equivalent of heat, by Lawrence B. Fletcher. The experimental work here described was completed in 1881, and forms the subject of a thesis submitted to the Johns Hopkins University in that year. In the present paper a more accurate method of calculating the currents from the deflection-curves is used, and some of the other calculations have been revised. But in other respects the results of the two papers are substantially the same. The experiment consists of simultaneous thermal and electrical measurements of the energy expended by a current in a coil of wire immersed in a calorimeter. The result depends upon the values of the mechanical equivalent and the unit of resistance, and gives a determination of either in terms of an assumed value of the other.—Cause of irregularities in the action of galvanic batteries, by Hammond V. Hayes and John Trowbridge. Here is investigated the phenomenon known as "endosmose," that is, the action by which the electric current carries whatever comes in its way from the positive to the negative electrode.—

On the sensitiveness of the eye to colours of a low degree of saturation, by Dr. Edward L. Nichols.—A study of thermometers intended to measure temperatures from 100° to 300° C., by O. T. Sherman.—Notice of a new Limuloid crustacean from the Devonian formations of Erie County, Pennsylvania, by Henry Shaler Williams. This specimen, provisionally identified with *Prestwichia*, would appear to throw back the range of that group to an earlier period than hitherto reported. The earliest previously-discovered *Prestwichia* occurs in the Carboniferous formations.—Gerhardtite and artificial basic cupric nitrates, by H. L. Wells and S. L. Penfield. The mineral here described under the name of Gerhardtite was first identified as a new species by Prof. Geo. J. Brush, who found it among a lot of copper minerals from the United Verde Copper Mines, Jerome, Arizona. Its specific gravity is 3.426; hardness, 2; colour, dark green; streak, light green; transparent; crystals, orthorhombic.—On the occurrence of fayalite in the lithophyses of obsidian and rhyolite in the Yellowstone National Park, by Joseph P. Iddings.—The genealogy and age of the species in the Southern Old Tertiary. Part 2. The age of the Vicksburg and Jackson Beds, by Dr. Otto Meyer.—On the probable occurrence of the great Welsh Paradoxides (*P. davidis*) in America, by Geo. F. Matthew. This largest and most remarkable species of Paradoxides occurring in the primordial fauna of Europe was first discovered about twenty years ago by Dr. Henry Hicks near St. David's, Wales, and subsequently (1869) in Sweden. But its presence has only recently been suspected in America, where specimens of large species appear to occur both in the Cambrian slate at Saint John, New Brunswick, and in a hard silico-calcareous shale at Highland's Cove, Trinity Bay, Newfoundland.

*Bulletin of the Philosophical Society of Washington*, vol. vii.—Besides the usual reports of the officers of the Society, this volume contains a learned address by the President (Mr. James C. Welling) on the atomic philosophy, physical and metaphysical; abstracts, among other, of papers by Mr. W. H. Dale, on recent advances in our knowledge of limpets; by Mr. Russell, on the existing glaciers of the High Sierra of California; by Prof. Kerr, on the mica mines of North Carolina; by Mr. Riley, on recent advances in economic entomology, in which the part which insects play in the economy of nature, and particularly their influence in American agriculture, were discussed. Mr. Burnett explained why the eyes of animals shine in the dark. It is not due, he says, to phosphorescence, as has been commonly supposed, but to light reflected from the bottom of the eye, which light is diffused on account of the hypermetropic condition that is the rule in the lower animals. Mr. Johnson writes on some eccentricities of ocean currents, compiled from the records of the Lighthouse Board; Mr. Clarke on the periodic law of chemical elements; Mr. Hazen, on the recent sun-glows; Mr. Russell, on deposits of volcanic dust in the great basin; Mr. Gilbert, on the diversion of water-courses by the rotation of the earth; Mr. Doolittle, on music and the chemical elements; Mr. Bates, on the physical basis of phenomena (which is printed in full). Mr. Gilbert presented a plan for the subject, bibliography of North American geological literature; Mr. Matthews, in a paper bearing the title of natural naturalists, combated the notion that savages are versed only in the knowledge of animals and plants which contribute to their wants. The writer found that Indians have a comprehensive knowledge of animals and plants; as a class the Indians "are incomparably superior to the average white man, or to the white man who has not made zoology or botany a subject of study." The Indian also is as good a generaliser and classifier as his Caucasian brother. Several speakers who followed agreed in this conclusion.—Mr. Dutton has a paper on the volcanoes and lava fields of New Mexico.—The following are among the principal papers in the Mathematical Section: Mr. Gilbert, on the problem of the Knight's tour; Mr. Farquhar, on empirical formulæ for the diminution of amplitude of a freely oscillating pendulum; Mr. Hall, on the formulæ for computing the position of a satellite (which is printed in full); Mr. Kummel, on the quadric transformation of elliptic integrals, combined with the algorithm of the arithmetico-geometric mean.

*Bulletin de l'Académie Royale de Belgique*, May.—M. Ch. Fievez, on the influence of magnetism on the characters of the spectral rays. The increase of the luminous intensity of the spark and its spectrum is attributed to the action of magnetism

on the luminous rays themselves. To elucidate this question the author limits his attention to the effect of magnetism in presence of the luminous and calorific movement apart from the electric spark and through the medium of the ponderable matter alone. For this purpose he studies the effect of magnetism on the spectra of the flames of sodium, potassium, lithium, and thallium raised successively to increased temperatures by the introduction of oxygen. From the results of his experiments he concludes that magnetism acts directly on the luminous rays, but abstains from any theory to explain the identity of the effects of magnetism and heat on the rays.—M. A. Swaen, on the development of the first blood corpuscles in the blastoderm of *Torpedo ocellata*. The results are given of studies made last year at the zoological station of Naples on the evolution of the follicles and the formation of the blood-vessels of this organism.—Note on the geology of the Tristan da Cunha islands, by A. F. Renard. A summary description is given of the typical rocks collected by the naturalists of the *Challenger* expedition.—State of the vegetation at Spa and Liège on April 20, and at Longchamps (Waremmes) on April 21, 1885, with comparative tables, by G. Dewalque and Baron E. de Salys Longchamps.—Essay on the mechanical theory of the surface-tension of the evaporation and ebullition of liquids, by G. Van der Mensbrugghe. In this first communication on the subject the author restricts his remarks to the question of the probable cause of surface-tension.—On the movements of the brain in the dog, by Léon Fredericq. Three distinct pulsations, corresponding respectively to the beating of the heart, to the respiratory action, and to the vaso-motor periods, are determined and illustrated with numerous tracings and diagrams.—Note on the carboniferous formations of Morvan, by A. Julien. The carboniferous schists, in contact with the older quartzose and azoic schists, run mainly north and south with a thickness ranging from 150 to 300 metres. Fossiliferous beds are rare, and the fossils, a list of which is given, generally in a very imperfect state.—A Royal Library in Assyria in the seventh century B.C., by M. Lamy. A detailed account of the explorations at Nineveh since the discoveries of Layard and Botta, including a description of the Royal Library, concludes with a history of the successful efforts made by Assyriologists to interpret the cuneiform writings.

*Rendiconti del Reale Istituto Lombardo*, June 25.—The conflict between Julius Cæsar and the Senate (B.C. 51–49), by Prof. J. Gentile.—The Italian Criminal Code: preventive justice and offences against the police, by Dr. Raffaele Nulli.—On the conditions of resistance of elastic bodies, by Prof. E. Beltrami.—On the floral dimorphism of *Jasminum revolutum*, Sims, by Prof. R. Pirodda.—Integration of the differential equation  $\Delta^2 u = 0$  in any of Riemann's areas, by Prof. Giulio Ascoli.—Meteorological observations made at the Brera Observatory, Milan, during the month of June.

*Gazzetta Chimica Italiana*, Palermo, 1885.—Note on diamidoximethyltriphenylmethane, by G. Mazzara and G. Possetto.—On the relations existing between the refrangent power and chemical constitution of organic compounds, by B. Nasini and O. Bernheimer.—Synthesis of phenilcinnamenilacrylic acid and of diphenyldiethylene, by O. Rebuffet.—Relation between the atomic weight and physiological functions of the chemical elements, by Fausto Sestini.—On the monobromo- and dibromopyromucic acids, by H. B. Hill.—Reply to the foregoing, by F. Canzonieri and V. Oliveri.

*Rivista Scientifico-Industriale*, June 15–30.—The total eclipse of the moon, October 4–5, 1884, by Prof. Carlo Marangoni.—Experiments on the extraction of the juice of tobacco and of other plants, by A. Pezzolato.—On the fossil land Articulata of the Palæozoic formations, by P. Bargagli.

## SOCIETIES AND ACADEMIES

### PARIS

**Academy of Sciences**, July 27.—M. Daubrée in the chair.—Discussion on the great gyratory movements of the atmosphere (continued), by M. H. Faye. The question whether these atmospheric movements are ascending or descending was compared by the author to the old astronomical argument regarding diurnal motion. Attribute it to the earth, and all becomes clear; attribute it to the stars, and you become involved in the contradictions by which the progress of science was retarded for twenty centuries.—A reply to M. Faye's communi-

cation, by M. Mascart. To the objection that the hypothesis of an ascending volume of air fails to explain the rotation of cyclones and tornadoes the author replies that if the wind in the northern hemisphere converges towards a centre of attraction it must turn to the right in consequence of the known influence of the earth's motion; hence the mass of air brought into play must revolve to the left. Thus the direction of the phenomenon is easily explained, and it follows that for a descending column of air the rotation must be reversed.—On isomery in the aromatic series: the oxybenzoic acids, their heat of formation and transformation, by MM. Berthelot and Werner.—Note on the anatomy and nomenclature of Dental, by M. de Lacaze-Duthiers. For the meaningless terms "Scaphopod" and "Cirribranch" the author proposes to substitute that of "Solenocoel" for this group of mollusks.—Observations of Barnard's comet made at the 14-inch equatorial of the Bordeaux Observatory, by MM. G. Rayet.—Elements and ephemerides of Barnard's comet deduced from the observations of July 12, 16, and 20, made at the Observatory of Nice, by M. Charlois. On presenting this paper M. Faye drew attention to the fact that the axis of the planet's orbit lies nearly in a line with the ecliptic, consequently with the planes of the orbits of the large planets. Hence, notwithstanding its inclination of 80° this planet may still be periodically like most of those offering the same peculiarity.—Summary of the solar observations made during the second quarter of the year 1885, by M. P. Tacchini. From these observations it appears that the solar spots and protuberances were more numerous in the second than in the first quarter of the year. In June protuberances were observed eight times which attained or reached a height of two minutes.—Observations regarding M. E. Hénard's note on the sixteen systems of the planes of the regular convex icosahedral, by M. Em. Berber.—Note on Riemann's function  $\zeta(s)$ , by M. Bourguet.—On the equilibrium of a fluid mass animated by a rotatory movement, by M. H. Poincaré.—Note on the differentials of the functions of several independent variables, by M. E. Goursat.—New condensing hygrometer; its use in regulating capillary hygrometers, by M. G. Sire.—Note on the reciprocal transformation of the two varieties (prismatic and octahedric) of sulphur, by M. D. Gernez.—On a new method of volumetric analysis applicable for testing the binoxides of manganese, by M. Paul Charpentier. This method is based on the use of the alkaline sulphocyanides, and avoids certain tedious processes and sources of error presented by the methods of analysis hitherto employed. Its chief advantage is the extreme sensibility of the reaction, which enables the analyst to detect the presence of 1-3,000,000th part of iron.—Heat of formation of the alkaline alcoholates, by M. de Forcrand.—Note on the peptonate of iron, by M. Maurice Robin.—On three new compounds of rhodium, by M. Camille Vincent. These substances are: (1) chlororhodate of mono-methylammonium, which takes the form of long, slender prisms grouped around a common centre; (2) chlororhodate of dimethylammonium deposited in the form of large efflorescent prisms of a deep garnet-red colour; (3) chlororhodate of trimethylammonium precipitated by slow evaporation in the form of long garnet-red prisms very soluble in water.—Origin and mode of formation of certain ores of manganese; their fundamental relations to the baryta associated with them, by M. Dieulafoy.—On a new phase in the evolution of the reticular rhizopods, by M. de Folin. In this new state these organisms assume the appearance of small, hard pebbles, from which it is often difficult to distinguish them. The circumstance suggests the creation of a new genus, Lithozoa, of which there would appear to be several species.—Note on Megaloscopy, by M. Larrey. The author explains the optical principle by which he has been guided in the construction of a series of instruments for the inspection of the stomach, vesica, and other internal parts of the system.—Observations of the solar corona made on Mount Etna early in the month of July; reappearance of the crepuscular lights, by M. P. Tacchini. The author observed in a deep blue sky the sun encircled by a white aureole concentric with a magnificent copper-coloured corona, which near the horizon was transformed to a larger but less clearly defined arc. Since July 2 he noticed the reappearance of the red crepuscular phenomena and of the great arc at sunset and sunrise. Although less intense than those of 1883–84, he considers that their reappearance after such a long interruption shows they cannot be referred to the Krakatoa explosion.—On the cosmic origin of the crepuscular lights, by M. José L. Landerer. The author argues that these effects are due more